

FIRE PROTECTION SUBMISSION GUIDELINES

DESIGN or PLANNING PHASE - Required Reviews

DES shall submit to the FPS all design and/or planning drawings and specifications for review which contain the following noted project elements. The submissions shall be made at the following times in the Design/ Planning Phase:

- ! At the concept stage, 35% stage, or 1st design submission, include required fire protection analysis study where applicable. (Refer to NIH Design Policy Guidelines Section H.8.2.)
- ! At the 95% or pre-final submission.
- ! At the 100% or final submission for AHJ signature.

<u>PROJECT ELEMENT</u>	<u>AREA OF FPS REVIEW</u>
Required Submission Items:	Submit the Following:
Fire Pumps	Submit preliminary design calculations, equipment location, piping diagrams.
Fire Suppression Systems - Sprinkler work involving the alteration or addition of four or more sprinkler heads; wet chemical (kitchen hood), CO ₂ , etc.	Submit preliminary design calculations (design to a “phantom remote area”), points of tie-in, equipment specifications. Optional design piping layout diagrams and head layout.
Fire Alarm Systems	Submit system and device layout diagrams, riser diagram, equipment specifications and catalog data.
Underground Fire Mains/ Hydrants	Submit preliminary calculations (“phantom remote area”), points of tie-in, equipment specifications, design piping layout diagrams

DESIGN or PLANNING PHASE - Optional Reviews

DES shall review the following noted project elements to ensure compliance with applicable fire protection requirements indicated or shall submit the elements to FPS for review. The items should be submitted to FPS whenever the Project Officer/ Planner is in doubt.

! *Submit once for AHJ review and approval signature.*

<u>PROJECT ELEMENT</u>	<u>AREA OF REVIEW BY P.O./ PLANNER OR FPS FOR APPLICABLE REQUIREMENTS</u>
Optional Submission Items:	
Fire Extinguisher(s)/Cabinet(s)	Review Fire Extinguisher(s) size and type of agent as well as placement (travel distance) per NFPA 10 and NIH DP&G requirements.
Fire Door(s)/ Frame(s)	Review Fire Door(s)/ Frame(s) ratings as well as proper hardware per NFPA 80 and NIH DP&G requirements.
Fire Damper(s)	Review Fire Damper(s) ratings as well as proper installation details per NFPA 90A and NIH DP&G requirements.
Mechanical and Sound Insulation	Review Mechanical and Sound Insulation flame spread/ smoke ratings per NFPA 90A and NFPA 101, and NIH DP&G requirements.
Interior Wall/ Ceiling Finish Material	Review Interior Wall/ Ceiling Finish Material flame spread/ smoke ratings per NFPA 101 and NIH DP&G requirements.
Carpeting/ Underlayment	Review Carpeting/ Underlayment flame spread/ smoke ratings per NFPA 101 & NIH DP&G requirements.
Exterior Site Work	Review exterior site work to ensure fire hydrant and connection locations and fire department access routes are not impeded.

<u>PROJECT ELEMENT</u>	<u>AREA OF REVIEW BY P.O./ PLANNER OR FPS FOR APPLICABLE REQUIREMENTS</u>
<p>Floor plan modifications and/or additions which affect required <i>means of egress, exit</i> requirements, the addition, deletion, moving or penetration of smoke or fire barriers and rated shafts, as well as, changes in occupancy use groups.</p>	<p>Submit floor plans with rated barriers identified and occupancies shown.</p> <p>As a practical guide only, submit all projects involving: new structures/ additions, wing/ floor renovations, multiple lab module renovations, lab/ office conversions, and renovations where walls or shafts are added/ moved/ removed.</p>
<p>HVAC Modifications</p>	<p>Submit system layout diagrams, riser diagrams, fire/ smoke damper locations to ensure proper duct enclosure and/or equipment to maintain fire barrier ratings.</p>
<p>Temporary enclosures which affect required <i>means of egress or exit</i> requirements.</p>	<p>Submit floor plans with required <i>means of egress or exit</i> requirements shown to ensure proper egress is maintained.</p> <p>As a practical guide only, submit all projects involving temporary structures which affect required <i>means of egress or exit</i> requirements. This includes temporary construction walls, asbestos abatement enclosures, temporary exits and doors, etc.</p>
<p>Revised or new lighting plans.</p>	<p>Submit lighting plans to ensure proper emergency illumination of the egress paths.</p>

CONSTRUCTION PHASE - DES Approved Submittals (FPS Reviews Not Required)

DES shall review and verify construction submittal(s) for the following noted materials project elements or shall submit the data to FPS for review. Approved items are items approved for their intended purpose by the latest BOCA *National Building Code* recognized testing agency. Equipment/ materials must be used in strict accordance with the manufacturers' approved printed installation listing for the precise intended application. While the elements are approved for the construction phase, the elements shall be inspected by FPS prior to close - in of construction (see CONSTRUCTION PHASE - Required Construction Inspections) The project elements should be submitted to FPS whenever the Project Officer/ Planner is not sure proper implementation of NIH Design Policy and Guidelines and applicable codes has taken place.

NOTE: Items designated with an “*” shall be inspected prior to “close-in.”

<u>PROJECT ELEMENT</u>	<u>CRITERIA FOR APPROVAL</u>
DES Submission Items (FPS Review not Required):	
Firestopping Material*	UL listed Fire Stop material and products cited must be specifically listed for the intended use and have proper hourly rating.
Spray-On Fireproofing Material*	UL listed <u>cementitious</u> material with the proper application thickness shown for the intended use.
Fire Door(s)/ Frame(s) - existing installations/ replacements. (New installations are reviewed for location)	UL listed, P.O. must verify: a) proper hourly rating for intended use. b) hardware UL listed or meets NFPA 80. c) certification for fire rated glazing & max. size.

<u>PROJECT ELEMENT</u>	<u>CRITERIA FOR APPROVAL</u>
Fire Damper(s)*	UL listed, P.O. must verify: a) does not exceed max. listed size b) leakage rating (if combination fire/ smoke type) c) proper listed application d) installation details in accordance with SMACNA®
Fire Wall System(s)	Meets UL listed design (shown on contact drawings) criteria.
Flammable Liquids Cabinet(s)	UL listed and provided in every laboratory module.

CONSTRUCTION PHASE - Required Submittal Reviews (FPS Review Is Required)

DES shall submit to the FPS for review all construction shop drawings, etc. (as noted below) for the following noted project elements. The submittals/ shop drawings shall be approved by FPS prior to installation work.

<u>PROJECT ELEMENT</u>	<u>AREA OF FPS REVIEW</u>
<u>Required Submittal Reviews</u>	
Fire Pump(s)	Submit UL listed fire pump equipment catalog data, shop drawings, calculations, controller, location, piping diagrams, pump curves.
Fire Suppression Systems - Sprinkler work involving the alteration or addition of four or more sprinkler heads; wet chemical (kitchen hood), CO ₂ , etc.	Submit equipment, piping plans and hydraulic calculations per NFPA 13, NFPA 17A and NFPA 12 (as applicable).
Fire Alarm System(s)	Submit equipment catalog data, shop drawings of point to point wiring diagrams and device installation drawings indicating conduit runs and wiring color code scheme on a FLOOR PLAN LOCATION drawing. Include backup battery calculations.
Underground Fire Main(s)/ Hydrant(s)	Submit equipment, piping plans and hydraulic calculations.
Field modifications and/or change orders which affect: required <i>means of egress, exit</i> requirements, the addition, deletion, moving or penetration of smoke or fire barriers, and changes in occupancy use groups.	Submit revised floor plans with rated barriers identified and occupancies shown for review. Submit for review prior to modification/ change.

CONSTRUCTION PHASE - Required Construction Inspections (FPS Inspection Is Required)

DES shall request FPS construction inspections for all projects which contain the following noted project elements:

NOTE: Pre-approved items are items approved for their intended purpose by the latest BOCA *National Building Code* recognized testing agency. Equipment/ materials must be used in strict accordance with the manufacturers' approved printed installation listing for the precise intended application. Submission information shall be available at the required field inspection.

NOTE: Items designated with an "*" shall be inspected prior to "close-in."

<u>PROJECT ELEMENT</u>	<u>AREA OF FPS INSPECTION</u>
Required Inspection Elements:	
Fire Pump(s)	<p>P.O. shall ensure Contractor has flushed and hydrostatically tested the piping. Contractor must complete a "Test Certificate for Aboveground Piping." Require the Contractor to submit the preliminary test certificate required by NFPA 20 prior to scheduling final inspection.</p> <p>The FPS shall witness the acceptance testing required by NFPA 20 (test shall be conducted and performed by the Contractor). The FPS shall verify the installation conforms to the approved shop drawings.</p> <p>Contractor shall provide the FPS with three copies of as-built drawings.</p>

PROJECT ELEMENT	AREA OF FPS INSPECTION
<p>*Fire Suppression System(s)- Sprinkler work involving the alteration or addition of four or more sprinkler heads; wet chemical systems; CO₂ systems, etc.</p>	<p>P.O. shall ensure Contractor has flushed the system. Witness the hydrostatic test of the piping. Contractor complete a "Test Certificate for Aboveground Piping. Require the Contractor to submit the preliminary test certificate required by NFPA 13 prior to scheduling final inspection.</p> <p>P.O. shall ensure Contractor has working copy of as-built drawing on-sight for inspection. Three copies of final as-built drawings shall be provided to the FPS for record purpose. Note: Final occupancy memorandum/ certificate will be held until receipt of final as-builts.</p> <p>The FPS shall inspect to verify the installation conforms to the approved shop drawings and verify the installation conforms with all NFPA 13 requirements.</p>
<p>Fire Alarm System(s)</p>	<p>P.O. shall ensure Contractor has performed the required preliminary testing. The FPS shall witness the acceptance testing required by NFPA 72 (test shall be conducted by the Contractor). The FPS shall verify the installation conforms to the approved shop drawings and verify the installation conforms with all NFPA 72 requirements.</p> <p>P.O. shall ensure Contractor has working copy of as-built drawing, which include a point-to-point wiring diagram with wiring color scheme, on-sight for inspection. Three copies of final as-built drawings shall be provided to FPS for record purpose. Note: Final occupancy memorandum/ certificate will be held until receipt of final as-builts.</p>

PROJECT ELEMENT	AREA OF FPS INSPECTION
*Underground Fire Main(s)/ *Hydrant(s)	<p>P.O. shall ensure Contractor has flushed the system. Witness the hydrostatic test of the piping. Contractor must complete a “Test Certificate for Underground Piping” and require the Contractor to submit the preliminary test certificate required by NFPA 24 prior to scheduling final inspection.</p> <p>P.O. shall ensure Contractor has working copy of as-built drawing on-sight for inspection. Three copies of final as-built drawings shall be provided to the FPS for record purpose. Note: Final occupancy memorandum/ certificate will be held until receipt of final as-builts.</p> <p>The FPS shall inspect to verify the installation conforms to the approved shop drawings and verify the installation conforms with all NFPA 24 requirements.</p>
Floor plan modifications and/or additions which affect: required <i>means of egress, exit</i> requirements, the addition, deletion, moving or penetration of smoke or fire barriers, and changes in occupancy use groups.	The FPS shall inspect to verify the installation conforms to the approved design/ planning submission and verify field modifications conform with NFPA 101 requirements, as well as NIH DP&G requirements.
Fire Door(s)/* Frame(s)	Inspect item(s) for conformance to NFPA 80 requirements as well as listed installation instructions.
*Fire Damper(s)	Inspect item(s) for conformance to NFPA 90A requirements as well as listed installation instructions. Dampers shall be tested by the Contractor to ensure proper operation and witnessed by FPS.
*Firestopping Material	Field installation inspection required after the first representative sample is complete and prior to close-in.

<u>PROJECT ELEMENT</u>	<u>AREA OF FPS INSPECTION</u>
*Fireproofing Material	Inspect conformance to listed installation instructions including verification of proper depth of material.
*Fire Wall System(s)	Inspect conformance to listed installation instructions.
*Flammable Liquids Cabinet(s)	Inspect conformance to listed installation instructions.
Fire Extinguisher(s)/ Cabinet(s)	Inspect item(s) for conformance to NFPA 10 requirements as well as NIH DP&G requirements.